ABSTRACT OF THE DISCLOSURE

A dense virtual router packet switching system includes a memory divided into context areas for a set of virtual private routed networks (VPRNs). Each context area includes a routing table and routing protocol state information for a corresponding VPRN. Each of a set of different routing tasks operates with a separate routing table and separate routing protocol state information to realize a corresponding virtual router. Context selection logic selectively couples the routing tasks to the different context areas of the memory to realize a set of virtual routers for all the VPRNs. The system supports a large number of routes by exploiting the segmentation of the VPRNs. Rather than having a single large routing table and associated routing process, which can load hardware resources in proportion to the square of the number of routes in the routing table, routes are distributed among a number of VPRNs having generally smaller tables and correspondingly less processing demand.

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